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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,046	10/10/2003	Robert E. Morris		3257

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EXAMINER	
ROMAN, LUIS ENRIQUE	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/684,046	Applicant(s) MORRIS ET AL.	
	Examiner Luis Roman	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,2 and 4-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant amendment filed on 01/13/06 has been entered. Accordingly claims 1 & 4 have been amended, claim 3 has been cancelled and claims 2 & 5 have been kept original. New claims 6 & 7 were added. It also included remarks.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5 & 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Dougherty (US 4937757).

Regarding claim 1 Dougherty discloses an overcurrent protective relay for use power system, comprising: means for obtaining current values from a power line, which values are adjusted for application to a processor (abstract); and a processor that evaluates the adjusted current values against a preestablished response curve (col. 2 lines 61-65), wherein the preestablished response curve includes a combination of (a) an inverse time overcurrent curve (Fig. 1 element 11) portion which, as fault current increases from a normal current value, the time to trip a circuit breaker for the power line decreases, and (b) thermal limit curve (Fig. 1 element 10), wherein the thermal limit curve crosses the time overcurrent curve at a selected current value, such that the thermal limit curve controls the time trip the circuit breaker for fault current values greater than the preselected current value and the overcurrent curve controls the time to trip for fault current values less than the preselected current value (col. 4 lines 33-41).

Regarding claim 2 Dougherty discloses the relay of claim 1. Dougherty further discloses wherein the selected thermal limit curve is an $I^2 t$ curve (col. 2 lines 37-40).

Regarding claim 5 Dougherty discloses the relay of claim 1. Dougherty further discloses wherein the time overcurrent curves can be adjusted to change the response of the relay (col. 4 lines 33-41).

Regarding claim 7 Dougherty discloses a method (a person of the ordinary skill will understand a method that is intrinsically described by the functioning of the apparatus) of tripping and overcurrent protective relay (Abstract and Fig. 4 elemnts signal 34 and circuit breaker 35) comprising the steps of: obtaining current values from a power line; adjusting the values for application to a processor (Fig. 4 elements power line <16>, signal conditioning<23>, processor <27>); and evaluating the adjusted current values against a preestablished response curve (Fig. 4 elements 27, 29), wherein the preestablished response curve includes a combination of (a) an inverse time overcurrent curve portion in which, as fault current increases from a normal current value, the time to trip circuit breaker for the power line decreases (Fig. 1 curve 12 which is a mathematical calculation from the real curves 11<overcurrent> and 10<thermal>: it can be seen that the tripping time in seconds decreases when the current in Amperes increases), and (b) a thermal limit curve, wherein the thermal limit curve crosses the time overcurrent curve at a selected current value (Fig. 1 curve 12, where the electronic curve<12> is representative of the overcurrent curve<11> for values greater than 3 amperes<crossing selected value>, and representative of the thermal curve<10> for values smaller than 3 amperes<crossing selected value>) such that the thermal limit curve controls the time to trip the circuit breaker for fault current values greater than the preselected current value (Fig. 4 elements 23, 27, 38, 31, 35 according to the corresponding area of the current determined by the curve12 in Fig. 1) and the overcurrent curve controls the time to trip for fault current values less than the preselected current value (Fig. 4 elements 23, 27, 38, 31, 35 according to the corresponding area of the current determined by the curve12 in Fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 & 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dougherty (US 4937757) in view of Bilac et al. (US 4672501).

Regarding claim 4 Dougherty discloses the relay of claim 1.

Dougherty does not disclose wherein the thermal limit includes a feature of producing a trip signal at a selected speed when the current reaches a value, which saturates an A/D converter portion of the relay.

Bilac et al. teaches wherein the thermal limit a feature of producing a trip signal selected speed when the current reaches a value (col. 8 lines 47-57 & Fig. 5A element 109, 110), which saturates an analog to digital converter (Fig. 1 element 24) portion of the relay.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dougherty device with the Bilac et al. device features to ensure that when the highest tolerable value of current is reached and the processor is saturated, the processor will generate a signal to trip the relay to prevent damage to the system.

Regarding claim 6 Dougherty discloses the relay of claim 1.
Dougherty further discloses wherein the thermal limit curve includes a feature of producing a trip signal (Fig.4 elements 34, 35 & Fig.5 element 46).
Dougherty does not disclose a trip signal at a selected speed when the current reaches a value insufficient to saturate an analog to digital converter portion of the relay.
Bilac et al. discloses a trip signal at a selected speed when the current reaches a value (Col. 8 lines 47-57 & Fig. 5A elements 109, 110) insufficient to saturate an analog to digital converter portion of the relay (Fig. 1 element 24).
It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Dougherty device with the Bilac et al. device features This circuit will provide instantaneous values of voltage current power factor and power are me4asured along with trip settings and voltage and frequency parameters which will make the device operate faster.

Response to Arguments

Daugherty discloses a tailored curve obtained from the combination/calculation of the curves 10 (thermal), 11 (overcurrent) and 12 (electronic), (Col. 4 lines 33-41).
Daugherty further teaches that the curve may be obtained after any improvement in the mathematic model of the combinantion of the thermal and overcurrent, in order to cover all three ranges of currents (low, medium, high).
Daugherty further teaches that linear interpolation may be used to determined the tailored curve, which makes easier algorithms but less exact fitting or logarithmic interpolation with more complex algorithms but better approximation to the real characteristics of thermal and overcurrent phenomena.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis E. Román whose telephone number is (571) 272 – 5527. The examiner can normally be reached on Mon – Fri from 7:15 AM to 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system.

Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Luis E. Román
Patent Examiner
Art Unit 2836

LR/033106

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